ABSTRACT

To permit multiple unsynchronized processors to update the file-modification time attribute of a file during concurrent asynchronous writes to the file, a primary processor having a clock manages access to metadata of the file. A number of secondary processors service client request for access to the file. Each secondary processor has a timer. When the primary processor grants a range lock upon the file to a secondary, it returns its clock time (m). Upon receipt, the secondary starts a local timer (t). When the secondary modifies the file data, it determines a file-modification time that is a function of the clock time and the timer interval, such as a sum (m+t). When the secondary receives an updated file-modification time (mp) from the primary, if mp>m+t, then the secondary updates the clock time (m) to (mp) and resets its local timer.